

What is claimed is:

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1. A photoresist composition comprising a resin binder, a photoacid generator compound and a non-aromatic amine compound that has from about 7 to about 20 carbon atoms and contains no primary or secondary amine groups.
 2. A photoresist of claim 1 wherein the amine compound has from about 9 to about 16 carbon atoms.
 3. A photoresist of claim 1 wherein the amine compound does not contain two tertiary amine groups linked by an optionally substituted ethylene group.
 4. A photoresist of claim 1 wherein the amine compound is
diazobicycloundecene;
diazabicyclononene;
di-butylethanolamine;
dimethylundecylamine;
1,8-diazabicyclo[5.4.0]undec-7-ene;
tri(propanol)amine;
sparteine;
N-ethyl dicyclohexyl amine;
pentrol;
tri-butylamine; or
di-butyl-N-ethanol amine.
 5. A photoresist of claim 1 wherein the photoacid generator is a non-ionic compound.

6. A photoresist of claim 1 wherein the resin binder comprises a polymer that contains pendant photoacid labile moieties and is substantially free of any aromatic groups.

7. A photoresist of claim 1 wherein the resin binder is completely free of any aromatic groups.

8. A positive-acting photoresist composition comprising 1) a resin binder that comprises a polymer that contains pendant photoacid labile moieties and is substantially free of any aromatic groups, 2) a non-ionic photoacid generator compound, and 3) a non-aromatic amine compound that has from 9 to 16 carbon atoms and contains no primary or secondary amine groups, and wherein the amine does not contain two tertiary amine groups linked by an optionally substituted ethylene group.

9. A method of forming a positive photoresist relief image, comprising:
(a) applying a coating layer of a photoresist of claim 1 on a substrate; and
(b) exposing and developing the photoresist layer to yield a relief image.

10. The method of claim 9 wherein the photoresist layer is exposed with radiation having a wavelength of about 193 nm.

11. An article of manufacture comprising a microelectronic wafer substrate or flat panel display substrate having coated thereon a layer of the photoresist composition of claim 1.

12. A photoresist composition comprising a resin binder, a photoacid generator compound and a non-aromatic amine compound that comprises either 1) a tertiary nitrogen alicyclic ring member; or 2) a tertiary nitrogen that is not a ring member, and is substituted by at least two secondary or tertiary carbon radicals.

13. A photoresist of claim 12 wherein the amine compound comprises a tertiary nitrogen alicyclic ring member.

14. A photoresist of claim 12 wherein the tertiary nitrogen ring member is at a junction position of at least two rings of a multiple ring compound.

15. A photoresist of claim 12 wherein the amine compound is a bicyclic compound.

16. A photoresist of claim 12 wherein the tertiary nitrogen radical is substituted by two tertiary carbon radicals and contains from about 6 to about 24 non-hydrogen atoms.

17. A photoresist of claim 12 wherein the photoacid generator is a non-ionic compound.

18. The photoresist of claim 12 wherein the resin binder comprises a polymer that contains pendant photoacid labile moieties and is substantially free of any aromatic groups.

19. A method of forming a positive photoresist relief image, comprising:
(a) applying a coating layer of a photoresist of claim 12 on a substrate; and
(b) exposing and developing the photoresist layer to yield a relief image.

20. The method of claim 19 wherein the photoresist layer is exposed with radiation having a wavelength of about 193 nm.

SEE FIG. 1

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21. An article of manufacture comprising a microelectronic wafer substrate or flat panel display substrate having coated thereon a layer of the photoresist composition of claim 11.

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